

Cal Poly Views
**Fresh Water Fish with
Dr. Jonathan Baskin**

Cal Poly Pomona University Library

Fresh Water Fish Summary

Cal Poly Views was a weekly interview series broadcast on radio station KWOW-AM. Episodes were 15 minutes long and were hosted by Cal Poly Pomona Director of News and Publications, Ed Pierce, in conversation with Cal Poly Pomona faculty or administrators on general interest topics.

Dr. John Baskin was a zoology professor at Cal Poly Pomona. He was one of few professors who made yearly trips to Central and South America in order to study freshwater fish in their native habitats. He also collaborated with the University of Venezuela to create joint college courses such as tropical biology and environmental biology between the university and Cal Poly Pomona.

Subject Headings

Catfishes

Orinoco River (Venezuela and Colombia)

Ornamental fish trade

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Cal Poly Views Fresh Water Fish with Dr. Jonathan Baskin

November 15, 1985

*Interview conducted by Ed Pierce
Transcribed by Iman A. Mirza*

EP: KWOW presents, “Cal Poly Views.”

(music)

EP: Hello everyone, welcome to KWOW’s presentation of “Cal Poly Views.” Fifteen minutes each week devoted to interviews concerning subjects of current general interest and featuring faculty or administrators from Cal Poly Pomona. This is your host Ed Pierce talking to today Dr. Jonathan Baskin, professor of zoology at Cal Poly Pomona. Together, we’ll discuss freshwater fish of the tropics in their native habitats and expanding courses in tropical biology and ecology. Today’s guest, Dr. Baskin has been at Cal Poly since 1971. Since that time, he’s averaged at least one trip a year to Central and South America, where he researches fresh water tropical fish and is developing a program in tropical biology. Welcome, Dr. Baskin.

JB: Good morning.

EP: There’s great interest in tropical fish—freshwater fish of the tropics—as we see from the number of aquariums, stores, fish stores, people that have home aquariums with all sorts of beautiful and colorful things. How did you become interested in freshwater fishes of the tropics?

JB: Well, when I was a graduate student working on saltwater fishes, I went down to Brazil—that was back in the ‘60s—and on the way back, I stopped in Belém in the Amazon just for a day. One trip to the fish market was enough; the diversity of fishes there was just incredible. It just boggled the mind. I’ve been working on South American freshwater fishes ever since.

EP: How many... this has got to be an estimate because I’m sure even everybody has not yet catalogued all of them. How many different species of freshwater tropical fishes, fishes of the tropics, are there?

JB: I would estimate that there are eight to ten thousand different tropical freshwater fish species. But like you said, we’re discovering new ones all the time. In fact, I’ve got a few new species sitting on my office in little jars, preserved, right now from the Orinoco river.

EP: How many different species of catfish alone are there?

JB: I’d say there are about two thousand catfish species, and catfish is the area that I’m particularly interested in.

EP: And these come from all different parts of South America? Central and South America?

JB: Yes, yes indeed. Catfish is practically everywhere in the freshwaters of South America; all the way up to the highest Andes, down to the bottom of the Orinoco river living in the gravel.

EP: Do they bear any resemblance one to another?

JB: Oh yes, there are characteristics which define “catfishness,” like whiskers for example, and other things—technical things which I go into in my courses.

EP: You began going what, in 1971 you said? And you’ve gone at least once a year since that time. Have most of those trips been into the country of Venezuela?

JB: Most of them have, yes. But I was in Brazil, Colombia, Panama, Costa Rica...

EP: When did you begin working with the University of Venezuela?

JB: *In 1980*—excuse me 1973, I attended a meeting in Costa Rica of the American Society of Ichthyologist Fish Studies and Herpetologists. I met a professor there, who invited me to come down. And right after that meeting, I took a side trip and went down to Venezuela; we’ve been working together ever since.

EP: Tell me about the field trips in 1978 and ‘79 which were, as I understand it, quite large research projects which you were one of the heads of that had teams—

JB: Oh yeah.

EP: —from different parts of the United States; different eastern universities and all.

JB: Yeah, that was an incredible set of trips. A group of us were sitting around, drinking beer after one of the meetings at the same society in Virginia. The professor from Venezuela was there and somebody said, “Why don’t we take this oceanographic research vessel into the delta at the Orinoco river?” This is the guy who mentioned [it], this was a professor at Duke. They had this oceanographic vessel. At the time, it seemed like a fantasy, but it worked. We got the National Science Foundation to fund two expeditions: one in ‘78 and one in ‘79. We got a team of scientists together from Duke, from several other American universities, as well as the Venezuelan university. We had about 15 scientists and we did a full survey, if all was possible within the one-month time slot we had for each of these two trips, of the fishes of the delta of the Orinoco river.

EP: And the Orinoco river is one of the world’s largest.

JB: Yeah, the Orinoco drains most of North and South America, on the east side of the Andes. It’s about the fifth largest river in the world; it’s confluent, actually, with the Amazon which is the largest river in the world. It’s really one river system. Many species occur in both.

EP: Can you briefly tell us how you would catalogue or identify the fishes in the Orinoco? Is this by divers or netting?

JB: Well, the way we catch them, in order to be able to catalogue them and identify them, is any way we can. But there are a number of different techniques, and netting is one of them. There are several different kinds of ways of netting, using gillnets and [inaudible]. The major thing that we did there that was new and different was to take this oceanographic vessel and using the nets that are normally used in the ocean [to] where there's a lot of water. We use them in the big water; the major portions of the Orinoco. These were bottom nets, midwater nets, and plankton nets. And then we use standard techniques, which even include putting a poison in the water. It's a poison that the Natives and South Americans have used for centuries. This will kill all of the fishes in a small area; fortunately, the poison is biodegradable, so it doesn't stay for very long. That's the way you can get the fishes in the inshore areas, where the water's full of sticks, branches, and things when you can't use a net. That applies to just playing hook and line.

EP: *Let's, for a minute, take a—*I'm picturing a fish in a tank, in an aquarium, later at home, or go back one step, it's come to the home from the aquarium store.

JB: Yeah.

EP: If that fish was not bred in this country and came from South America, how long a journey [or] how many people were in contact with the fish? Three or four in the native country and three or four in this country?

JB: That's a good estimate. The people that do the actual catching of these fishes are the native people there that live in the small villages, way out in the boonies. They dig out canoes and bring the fishes in the bottom of the dugout canoe; they take them to usually a wholesaler right there in the village, who may take them into a larger wholesaler in the main city like in Bogotá. There's a large aquarium trade in Colombia, and they're flown out. There's three or four people right there and once they get to the United States, then there's at least one wholesaler and the aquarium trade person.

EP: I would think knowing something about pumps for aquariums and all of that, that they have to... you just don't put them in a pail of water and four days later, land at LAX.

JB: Well, yeah. Once you put them in an airplane, they're packed quite nicely in boxes, styrofoam, and plastic bags. But out in the boonies, it's very crude. In fact, I was involved in a survey that was sponsored by the U.S. Fish and Wildlife Service some years ago. We went down with a group of people from United States to evaluate the impact of aquarium trade on the native habitat and—

EP: [*Mumbles in acknowledgement*]

JB: k—what was going on. Was it depleting stocks? And there, we had an opportunity to see these people, actually, operating. The fish are pretty tough, so they can handle quite a bit when they're still down there.

EP: Would it be the heartier specimens that probably would make it up here?

JB: Oh yeah.

EP: Would I be right that some of them are bred in this country? I mean that—

JB: Oh yeah.

EP: —the species did originate there, but they recreate, procreate here so that not every specimen has made the trip from Central or South America.

JB: There's a very large trade in south Florida and in those areas. [You can] imagine it's warmer, more of a tropical climate. And they're able to breed lots of those species. Also, in southeast Asia and Hong Kong—places like that—there's a considerable industry in breeding these things.

EP: Come forward now to... I think it was 1982 when the first Cal Poly Pomona students made a trip, spend a [few] months in the field of Venezuela—

JB: Yup.

EP: —in tropical fish or tropical biology field trips. Can you describe that and what has progressed since that time?

JB: Oh well, what happened was this; we had this research program going on for almost ten years. During that time, some of the students from Venezuela—because we were working with the Venezuelan university the entire time—came up here to Cal Poly. In fact, one of those students, who went on for a PhD at Duke, is now the head of the department down there at the University of Venezuela. We got the idea of bringing down a group of American students to have a tropical biology course—not just fish, by any means—but a full tropical biology course in Venezuela. We carried that out in 1982; brought down a group of our students with the Venezuelan students, and now what we'd like to do is bring up a group of Venezuela students to do a similar type of trip. Down there, we took the group of students to eight different habitats over a period of a month in Venezuela; spent several days in each one with experts on those habitats lecturing to us right there in the rainforest, having the expert on that rainforest talking about it. And now, we're going to bring them here.

EP: And they are coming this—

JB: This spring.

EP: —spring, is that correct?

JB: —is the plan. Right.

EP: And they will be looking at the ecology and the ecosystems of the southwest.

JB: Right, exactly.

EP: Not just fish, and it's not just [in] southern California.

JB: Right, right. We'll be going to Arizona for a course which we normally run for our students. We're going to include the Venezuelan students and at this time, we're also going to be taking them up the [inaudible] valley through the Yosemite and down the Central Valley; looking at the agroecology of the Central Valley and then going down to the Imperial Valley. We'd be doing the area around the Salton Sea. And then we're also going to visit a large number of universities and other scientific institutions in this area, which have things that are of interest to the Venezuelan students and to our students in the area of the environments and the agroecology of the Southwest.

EP: And the goal is to achieve an alternate year—

JB: Yes.

EP: —trip. The course is given there in Venezuela [for] one year and includes both University of Venezuela and Cal Poly students

JB: Right.

EP: One year it's there, and one year it's here.

JB: Right. In fact, we're even looking to find some students from Mexican universities where we have an association. Some of the people at Agriculture have developed some good, strong ties with some Mexican institutions. We're looking for qualified students from there to be involved also.

EP: So, the students could include Environmental Design, Landscape Architect people—

JB: Yes, Environmental Design—

EP: —agriculture?

JB: They run some field courses, and we're going to incorporate parts of their field courses into this course. We're hoping to interest some environmental design and agriculture students.

EP: This is a graduate-level course open to what, qualified seniors, I suppose?

JB: Correct, yes.

EP: What type of student is here or what is their career likely to be? Of the person that goes thereafter.

JB: Well, we're looking for a student with a good, strong background in environmental biology and with an interest in going on in that field. Part of the objective of this is to develop ties with people in Latin America; we feel this is an important area that's going to be developing in the future. Most of the underdeveloped countries in the world are currently in the Tropics. As we well know, a lot of them are in Latin America. Several of the students, who were involved in that very first course, have gone on in this field and are presently pursuing studies that are in the area of tropical environments.

EP: So, there's an alderman benefit, if you will, for third-world or developing countries to assist them in what, understanding tropical ecology?

JB: Problem-solving. That's what we feel is a great strength of Cal Poly and of our students is our basic attitude of a practical problem-solving approach. That's what these countries need; they're very interested in that and that's why they've come here and are working with us.

EP: Well, thank you Dr. Baskin. And thank you, ladies and gentlemen, for listening to this week's edition to Cal Poly views. Fifteen minutes devoted to discussing topics of current and general interest. If there are subjects which you would like to hear discussed by faculty or administrative experts from Cal Poly Pomona, please write to "Cal Poly Views" Office of News and Publications, 3801 West Temple Avenue, Pomona 91768. We hope you will join us again next week at the same time for another interesting interview when KWOW presents "Cal Poly Views." This is your host, Ed Pierce, speaking.

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End of Interview

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